

131-349

AU 335

45611

GB 0760772
NOV 1956

1956

72
6B-11-1956
Fesoler

141

fire barrier
(metallic)

BRITISH

Fig. 1

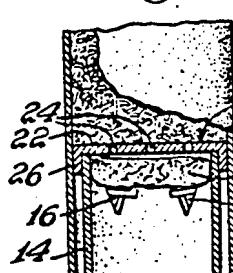


Fig. 2

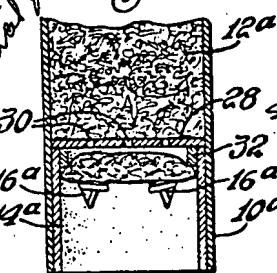


Fig. 3

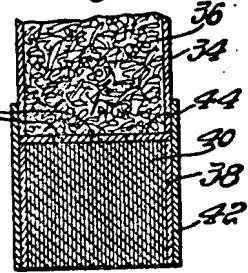


Fig. 4

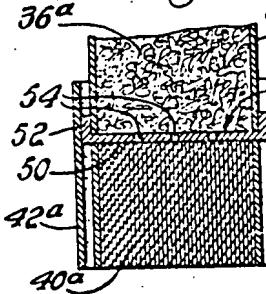


Fig. 5

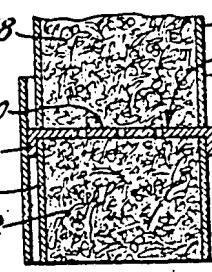


Fig. 6

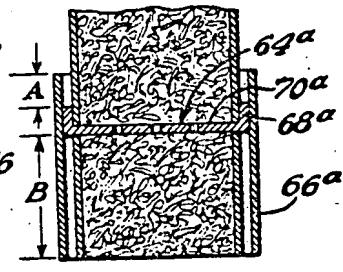


Fig. 7

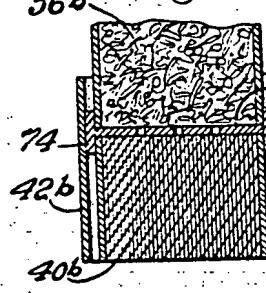


Fig. 8

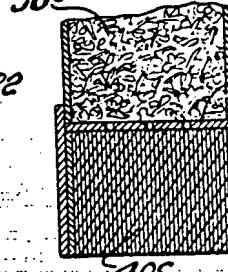


Fig. 9

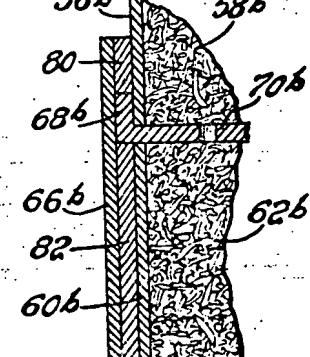
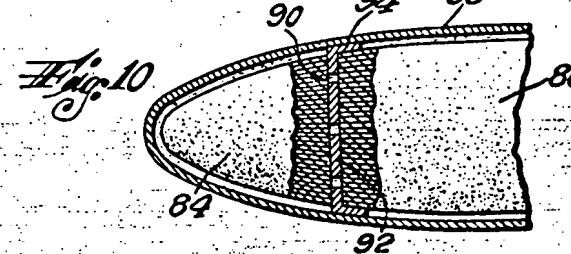
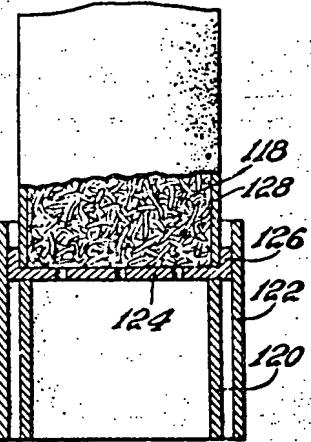
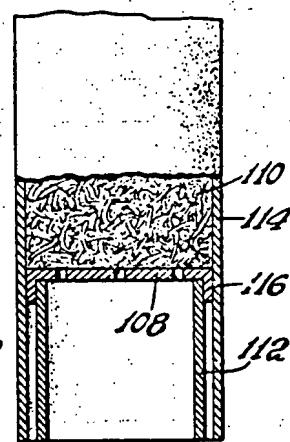
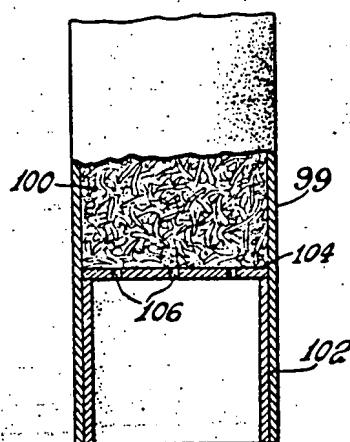
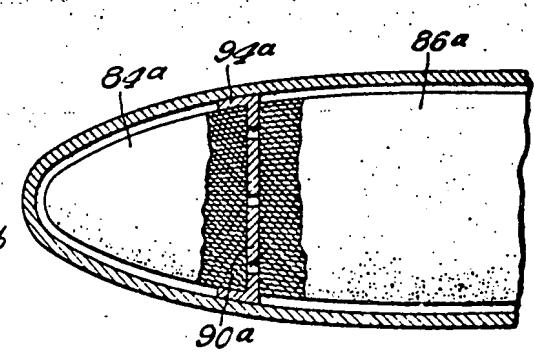
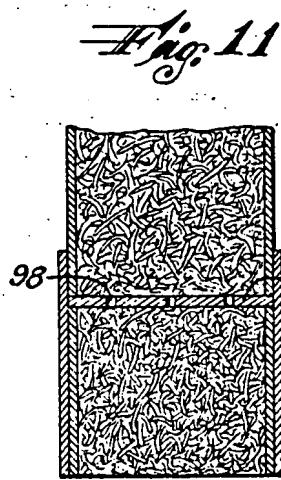


Fig. 10



760772
2 SHEETS

COMPLETE SPECIFICATION
This drawing is a reproduction of
the Original on a reduced scale
Sheets 1 & 2



	<i>Experiments</i>	D	E	F	G
Wt. Chloroform Soluble Resins and Tar in Smoke	0.0930	0.0887	0.0038	0.0787
% Resins and Tar in Smoke	2.66	2.54	1.69	2.12
Wt. of Nicotine in Smoke	0.0089	0.0078	0.0038	0.0051
% Nicotine in Smoke	0.240	0.210	0.103	0.138
% Resins and Tar Removed by Filter	—	—	—	35.0	18.5
% Nicotine Removed by Filter	—	—	54.1	38.7
Total % Undesirable Constituents Removed by Filter	—	—	36.5	20.1
10	10				10

The same phenomenon as has been mentioned hereinbefore, namely, the growth of resins and tars in form of stalactites, was observed on all the cotton filters when used 15 in conjunction with aluminum foil.

The smoking time of the cigarettes under a vacuum of 43 mm. water column below atmospheric pressure, when smoked without a filter, showed fluctuations of about 14%. 20 When cigarettes were smoked with the perforated foil and with cotton in the holder, under the same vacuum, the fluctuations between the fastest and slowest burning cigarette amounted to about 14%, with the 25 small holes, and to about 16%, with the large holes. The use of foil and cotton in the holder did not affect the smoking rate of the cigarettes. It is noted that the accuracy of determining the smoking time requires a 30 tolerance of at least 14%.

A comparison of the data on experiments C and F shows that the number of 7 and 8 holes of the same diameter, respectively, results in approximately the same amount of 35 nicotine removed, although in the experiments C three times as much cotton was used as in the experiments F. In the latter experiments 54.1% of the nicotine was removed, and in the former experiments 57.1%. 40 was removed.

From the comparison of the data on experiments C and F, on the one hand, and G, on the other hand, the important conclusion can be drawn that smaller holes are more 45 effective as to the removal of nicotine. When the perforations were enlarged and less in number (experiments G), the removal of nicotine was only 38.7%, a reduction of 30%, with respect to experiments C and F.

50 According to further experiments made, for best results I provide metal inserts or condensers having perforations smaller than approximately 0.05" diameter. When filtering material with highly adsorptive properties is used, for instance, impregnated filter material, perforations larger than 0.05" diameter will also show satisfactory results.

It is believed that my filter cigarette and filter cigar, especially my filter device and its 60 function, and the many advantages of this device, will be clearly understood from the foregoing detailed description. Some of the functions and advantages are reviewed herein-

after. The filter device is very simple. While any high heat-conductivity material in any 65 suitable form may be used as my insert or condenser, it constitutes a desirable feature of my invention to use metal in form of foil, such as aluminum foil, tin foil, etc. The incorporation of the device, which consists of 70 the insert or condenser and the filter, in a cigarette or cigar can easily be effected with existing manufacturing equipment. Where necessary, adaptation of the present methods and equipment can readily be made. The 75 metal inserts are arranged so that no smoke by-passes same, but that all smoke is forced to pass through perforations provided in the inserts. The inserts have a cooling action on the tobacco smoke, which results in a con- 80 densation of the condensable vapors of the smoke. The liquid particles so obtained are suspended in the tobacco smoke stream. When the smoke passes through the small orifices in the inserts, the latter, in addition 85 to acting as condensers, are also effective in agglomerating the fume particles. The particles coalesce into droplets which are easily retained when the stream of smoke passes through the filtering material. The pro- 90 vision of perforations smaller than 0.05" diameter proved highly efficient. It is believed that the increased velocity of the tobacco stream prior to entering the perforations and while passing through the perfora- 95 tions intensifies the action of my inserts as a condenser and an agglomerator. The filter device has the great advantage of removing a great proportion of the undesirable condensable substances of tobacco smoke, while 100 it does not affect the flavouring constituents of the smoke.

It has been found that my metal inserts, in addition to having a cooling effect, have also a catalytic effect and, thus, lessen the 105 detrimental effects of tobacco smoke even if no filtering material is used.

It will be apparent that while I have shown and described my invention in a number of forms, many changes and modifications may 110 be made without departing from the scope of the invention as defined in the following claims.

What I claim is:—

1. A cigarette or cigar, having a smoke- 115 filtering device comprising at least one mem-

ber of high heat-conductivity material, said member including a wall extending transversely across the cigarette or cigar at least as far as the peripheral wrapper part thereof, 5 said wall being provided with perforations to allow smoke to pass therethrough before entering the mouth of the smoker.

2. A cigarette or cigar according to Claim 1 further including recipient material for 10 condensed substances, said recipient material being provided beyond the wall, when viewed in the direction of the stream of tobacco smoke drawn through the cigarette or cigar.

15 3. A cigarette or cigar according to Claim 2, including at least one member of metal foil.

4. A cigarette or cigar according to Claim 2 comprising tobacco as said recipient 20 material.

5. A filter cigarette or filter cigar, comprising a smoking tobacco section, a filtering tobacco section, and a member of material of high heat-conductivity, said two 25 sections meeting in a plane and forming a cigarette or cigar of the usual tobacco-filled drawing end type, said member being shaped to extend in said plane across the whole cross section of the cigarette or cigar to a 30 point contiguous to the wrapper or hull thereof for the filter section and being provided with perforations to allow the smoke to pass therethrough.

6. A cigarette or cigar according to Claim 35 5 wherein said member comprises a perforated disc of material of high heat conductivity, said disc being of such size as to form a cigarette or cigar having a smooth external surface.

40 7. A cigarette or cigar according to Claim 5 wherein said member is of cup-shape, said member including a perforated bottom wall shaped to extend between the two sections across said whole cross section, and a side 45 wall extending in contact with the wrapping of the cigarette or cigar.

8. A cigarette or cigar according to Claim 7 wherein the side wall is directed toward the burning end of the cigarette or cigar, the cup-like member thus encompassing the end portion of the smoking tobacco section at the joint of the two sections.

9. A cigarette according to Claim 8 where- 55 in the side wall extends coaxially with the cigarette, and recipient material for condensed substances is provided within the mouthpiece.

10. A cigarette according to Claim 9 wherein said side wall is in sealed contact with the wrapping of the cigarette to prevent 60 safely any tobacco smoke from by-passing the cup-like member.

11. A cigarette according to any of Claims 6 to 10 comprising a roll of smoking tobacco and a roll of tobacco for filtering purposes 65 both the rolls having identical cross section and meeting in a plane vertical to the axis of the cigarette and having separate wrappers, the two rolls being joined in end-to-end relation with the perforated disc or wall extending between the rolls across the whole meeting plane.

12. A cigarette or cigar according to Claims 7 and 11 wherein a wrapper encloses and joins said two rolls in a plane vertical 75 to the axis of the cigarette or cigar, and the side wall of the cup-shaped member is directed toward the mouth end of the cigarette or cigar.

13. A cigarette according to any of Claims 2 to 4 or 6 comprising a wrapped roll of tobacco having an end portion free of tobacco and a mouthpiece formed by a sheath of stiffer material disposed within said free end portion with the member or disc 85 between them, recipient material for condensed substances being provided within the sheath.

14. A cigarette or cigar according to Claim 2 wherein the recipient material for 90 condensed substances is formed into a porous plug, said plug being accommodated within a mouthpiece wrapper.

15. A cigarette or cigar according to Claim 2 wherein said recipient material is 95 spaced away from the wall.

16. A cigarette or cigar according to Claim 2 wherein said recipient material is impregnated with chemical compounds of an acid nature to react with ammonia and 100 other basic compounds of tobacco smoke and to form stable compounds therewith.

17. A cigarette or cigar according to either of Claims 1 or 5 wherein said perforations are smaller than approximately 105 0.05" diameter.

18. A filter cigarette or cigar, substantially as described and illustrated.

WHEATLEY & MACKENZIE,
376/379, Strand, London, W.C.2.
Patent Agents.

Printed for Her Majesty's Stationery Office by Wickes & Andrews, Ltd., E.C.4. 684/2.—1956.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies
may be obtained.